

AMENDMENT TO THE CLAIMS:

The following listing of claims replaces all prior versions of the claims and all prior listings of the claims in the present application.

C1
SubP7

1-20. (canceled)

21. (previously presented) A magnetoresistive effect device, comprising:
a substrate having a main surface;
a magnetoresistance effect film formed on the main surface of said substrate and
having a magnetic field detecting portion;
a pair of bias magnetic field applying films disposed adjacent to both edge portions
of the magnetic field detecting portion, the bias magnetic field applying films having hard
magnetic films containing Co as a structural element and having a bi-crystal structure.

22. (previously presented) The magnetoresistance effect device as set forth
in claim 21,
wherein said hard magnetic film containing Co as a structural element has Co(110)
oriented perpendicular to the surface thereof.

23. (previously presented) The magnetoresistance effect device as set forth
in claim 21,
wherein said hard magnetic film is composed of CoPt or CoCrPt.

24-25. (canceled)

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*CT
Cont'd*

26. (previously presented) The magnetoresistance effect device as set forth in claim 21,

wherein said pair of bias magnetic field applying films are abutted against said magnetoresistance effect film.

*Subj
C/NX*

27-46. (canceled)

47. (previously presented) A magnetic head, comprising:
a lower magnetic shield layer;
a magnetoresistance effect device formed on said lower magnetic shield layer through a lower reproduction magnetic gap, said magnetoresistance effect device being as set forth in claim 21 or 23; and

an upper magnetic shield layer formed on said magnetoresistance effect device through an upper reproduction magnetic gap.

48. (previously presented) A magnetic recording/reproducing head, comprising:

a reproducing head having a magnetic head as set forth in claim 47;
a recording head having a lower magnetic pole in common with said lower magnetic shield layer of said magnetic head, a record magnetic gap formed on the lower magnetic pole, an upper magnetic pole formed on the record magnetic gap, and a record coil for supplying a record magnetic field to the lower magnetic pole and the upper magnetic pole.

49-59. (canceled)

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Clk
Crn

60. (currently amended) The magnetoresistance effect device as set forth in claim 21, wherein an under-layer having a thickness of 5 to 50 nm or less is disposed between the substrate and the hard magnetic layer, the under-layer being composed of an amorphous layer formed on the substrate and a crystal layer formed on the amorphous layer.

SubD
Crn

61. (previously presented) The magnetoresistance effect device as set forth in claim 21, wherein the magnetoresistance effect film is a spin valve film comprising a ferromagnetic film and a non-magnetic film.

62. (previously presented) A magnetoresistance effect device, comprising:
a substrate having a main surface;
a magnetoresistance effect film formed on the main surface of said substrate and having a magnetic field detecting portion;
a pair of bias magnetic field applying films disposed adjacent to both edge portions of the magnetic field detecting portion, the bias magnetic field applying films having hard magnetic films containing Co as a structural element and having a bi-crystal structure, the hard magnetic films having a residual magnetization Mr of 650 emu/cc or more.

63. (previously presented) The magnetoresistance effect device as set forth in claim 62, wherein said hard magnetic film containing Co as a structural element has Co(110) oriented perpendicular to the surface thereof.

64. (previously presented) The magnetoresistance effect device as set forth in claim 62, wherein said hard magnetic film is composed of CoPt or CoPtCr.

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*C1
Cmt*

65. (previously presented) The magnetoresistance effect device as set forth in claim 62, wherein said pair of bias magnetic field applying films are abutted against said magnetoresistance effect film.

*Sub D1
Cmt*

66. (canceled)

67. (currently amended) The magnetoresistance effect device as set forth in claim 62, wherein an under-layer having a thickness of 5 to 50 nm or less is disposed between the substrate and the hard magnetic layer, the under-layer being composed of an amorphous layer formed on the substrate and a crystal layer formed on the amorphous layer.

68. (previously presented) The magnetoresistance effect device as set forth in claim 62, wherein the magnetoresistance effect film is a spin valve film comprising a ferromagnetic film and a non-magnetic film.

69. (previously presented) A magnetic head, comprising:
a lower magnetic shield layer;
a magnetoresistance effect device formed on said lower magnetic shield layer through a lower reproduction magnetic gap, said magnetoresistance effect device being as set forth in claim 62; and
an upper magnetic shield layer formed on said magnetoresistance effect device through an upper reproduction magnetic gap.

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70. (currently amended) A magnetoresistance effect device comprising:
a substrate having a main surface;
a magnetoresistance effect film formed on the main surface of the substrate and having a magnetic field detecting portion;
a pair of bias magnetic field applying films, each being disposed adjacent to both edge portions of the magnetoresistance effect film, said each of the bias magnetic field applying film comprising an under-layer composed of an amorphous layer and a metal crystal layer formed on the amorphous layer, and a hard magnetic film formed on the metal crystal layer of the under-layer.

71. (previously presented) The magnetoresistance effect device as set forth in claim 70, wherein said hard magnetic film is composed of CoPt alloy.

72. (previously presented) The magnetoresistance effect device as set forth in claim 70, wherein the hard magnetic film has a residual magnetization Mr of 650 emu/cc or more.

73. (previously presented) The magnetoresistance effect device as set forth in claim 70, wherein the magnetoresistance effect film is a spin valve film comprising a ferromagnetic film and a non-magnetic film.

74. (previously presented) The magnetoresistance effect device as set forth in claim 70, wherein the hard magnetic film has a bi-crystal structure.

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*C
Canc.
Sub D
Canc.*

75. (previously presented) The magnetoresistance effect device as set forth in claim 70, wherein the metal crystal layer is formed of a crystal metal material having a bcc structure, the crystal metal material being at least one selected from the group consisting of Cr, V, and an alloy thereof.

76. (canceled)

77. (currently amended) The magnetoresistance effect device as set forth in claim 70, wherein the under-layer has a thickness of 5 to 50 nm or less.

78. (previously presented) A magnetic head, comprising:
a lower magnetic shield layer;
a magnetoresistance effect device formed on said lower magnetic shield layer through a lower reproduction magnetic gap, said magnetoresistance effect device being as set forth in claim 70; and
an upper magnetic shield layer formed on said magnetoresistance effect device through an upper reproduction magnetic gap.

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